Australian Government
Civil Aviation Safety Authority

DISCUSSION PAPER
DP 2202MS

Part 66 aircraft type ratings

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Overview

This discussion paper (DP) is one of CASA's GA Workplan initiatives to streamline airworthiness and maintenance. It presents a range of options to improve maintenance type rating training arrangements in general, and for legacy helicopters in particular.

This DP:

- discusses the existing procedures for assigning maintenance type ratings to aircraft
- considers measures to provide more flexible access to AME type ratings on a licence
- presents potential improvements to the current method of generating type ratings
- will include consideration of whether any existing type ratings warrant either removal or consolidation with other similar aircraft types under a common rating.

Why are we consulting

Since Part 66 of the *Civil Aviation Safety Regulations 1998* (CASR) was introduced, type ratings for Australian aircraft have been harmonised with EASA Part 66 ratings and are generally adopted without change for large and/or complex aircraft. However, experience has indicated that strict adherence to the EASA model is not ideal for Australian conditions and some additional flexibility needs to be structured into the Australian Part 66 type rating process.

CASA has held discussions with the Part 66 Technical Working Group (TWG), maintenance organisations, helicopter operators, maintenance training providers and LAMEs regarding concerns expressed to CASA about by cost and availability of training for type ratings in Australia, particularly, but not exclusively, with regard to older helicopter types.

This DP outlines a range of legislative and non-legislative policy options that have been identified as potential areas for improvement in the Australian type rating framework.

CASA is seeking input from industry on these policy options in order to identify the areas that should be prioritised to maximise benefits for industry, and to help inform the next stages of policy development and implementation for the policy options that will be progressed.

Contents

1 Reference material

1.1 Acronyms

The acronyms and abbreviations used in this DP are listed in the table below.

Acronym	Description
AC	Advisory circular
AMO	Approved maintenance organisation
CAR	Civil Aviation Regulations 1988
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations 1998
EASA	European Union Aviation Safety Agency
MTO	Maintenance training organisation

1.2 References

Legislation

Legislation is available on the Federal Register of Legislation website https://www.legislation.gov.au/

Document	Title
Part 66 of CASR	Part 66 - Continuing airworthiness—aircraft engineer licences and ratings
Part 66 MOS	Part 66 Manual of Standards (MOS)
Part 145 MOS	Part 145 Manual of Standards

Advisory material

CASA's advisory materials are available at https://www.casa.gov.au/publications-and-resources/guidance-materials

Document	Title
AC 66-07	Practical training options for aircraft type training and recording of recent work experience
AC 66-08	Part 66 aircraft engineer licences privileges

Other documents

Document	Title
EASA CS-MCSD	Certification Specifications for Maintenance Certifying Staff Data
EASA Easy Access Rules	EASA Easy Access Rules for Continuing Airworthiness

2 Introduction

2.1 Background

Type ratings are a key element of the safety assurance framework, requiring more specific training for certain types of aircraft and engines in addition to that of the licence category or subcategory.

Attainment of aircraft and engine type ratings is predominantly structured around CASA approved type training courses provided by Part 147 approved maintenance training organisations (MTO) and aircraft/engine manufacturers, with some training also able to be provided by approved maintenance organisations (AMO).

Industry participants have expressed concerns to CASA about the current type rating arrangements, particularly in relation to availability of training, costs, administrative burden and differences from the previous licensing arrangements.

2.2 The most noted problems by maintenance providers and aircraft operators

Industry participants have made representations to CASA requesting a review of the current aircraft maintenance type rating method and structure citing the lack of availability of type training courses and the costs involved. Specific concerns raised by industry include:

- MTO and manufacturer aircraft type training courses are inaccessible or unavailable, particularly in the rotary wing sector where class sizes are small and less likely to be commercially attractive to training providers.
- Organisations are facing a skills shortage as the workforce of licence holders whose type rating privileges were carried over from the old CAR 31 licensing system approach retirement.
- Some CASA approved international type training courses are available; however, the costs associated with attendance at these courses can be commercially unsupportable for providers of maintenance services in the limited Australian market.
- Bespoke courses can be negotiated with approved course providers; however, many course providers are heavily committed to the airline training market and do not have the capacity or business case to provide training for “legacy” helicopter types.
- Some existing type ratings provide little or no safety benefit - the area of most concern was the automatic assigning of the EASA type ratings to previously non-type rated Group 19 aircraft during the transition to Part 66 of CASR.

2.3 Regulatory issues

CASA proposes to continue to generally harmonise with EASA type ratings and associated processes. However, CASA acknowledges that:

- the EASA process is not necessarily the best “fit” for Australian conditions in all cases, particularly where the pool of local MTOs is limited and the cost of travel and accommodation places overseas training out of the financial reach of many individuals and small organisations.

- EASA has made a range of changes to their type rating arrangements that have not been integrated into the Australian legislation; for example, EASA has introduced formal type rating groups which have not been included in Australian legislation, although it is noted that the current Australian category/sub-category arrangements already provide much of the substantive effect of the EASA groupings.

2.4 Outcomes sought

The policy options outlined in the following sections are intended to deliver a range of benefits including:

- creating a more efficient and streamlined regulatory environment by eliminating those maintenance training requirements over and above category training that do not address an identified safety-based need
- providing for lower operating costs for maintainers by reducing red tape
- providing for operators to have better access to maintenance providers
- improved accessibility to type ratings, through approved training organisations, maintenance organisations and international providers
- improved flexibility for training providers to prepare training courses that cover a range of aircraft types.

3 Policy options

This section outlines the various policy options that have been identified by CASA as potential areas for improvement. The options cover a range of areas, both legislative and non-legislative:

- Some are legislative in nature and would involve legislative change to achieve the intended benefit.
- Some are non-legislative in nature and would only involve procedural change to achieve the intended benefit.
- Some are beneficial features of the current arrangements that are already available, but are not being utilised to the extent envisaged, so there may be improvements that could be made to improve outcomes.

CASA is seeking input from industry on each of these possible options.

3.1 Policy option 1: Review type rating protocol

This option would review the type rating classification approach, which is currently based primarily on harmonisation with EASA type rating decisions for large and/or complex aircraft.

CASA proposes to develop a formal, technical review protocol that would be applied in cases where it may be necessary and appropriate to vary from an EASA decision. This review could be initiated by CASA through certification and type rating processes, or by industry through the type rating consultation processes.

The EASA type rating process has recently been formalised in CS-MCSD. CS-MCSD takes into consideration the differences in a specified range of technologies and, amongst other considerations, will impose a type rating if analysis identifies differences in more than 30% of the aircraft systems that are significant for the maintenance training in terms of:

- maintenance areas of special interest
- architecture
- functionality
- purpose
- interrelation between the systems
- installed components/equipment/units (function, location)
- materials used (with different physical characteristics, e.g., composites in the place of metallic)
- maintenance practices/procedures
- technologies.

CASA considers that the EASA processes are generally appropriate; however, in some cases it may be necessary and appropriate for Australia to vary or not to adopt an EASA decision.

A decision to type rate an aircraft has the effect of imposing additional compliance costs on industry that must be justifiable on safety grounds.

Maintenance requirements for a complex aircraft and engines broadly comprise:

- a series of methods, techniques and practices that are within the competency of LAMEs based on normal category or subcategory training and experience
- safety critical maintenance requirements that are not covered by normal category or subcategory training and could result in an unsafe aircraft condition if carried out by LAMEs who have not had specific training
- mixture of both.

Type ratings therefore must be based on an assessment of whether an aircraft (or engine) type incorporates maintenance requirements which are:

- safety critical
- not covered by Part 66 licence category or subcategory training
- could result in an unsafe maintenance outcome in the absence of specific maintenance training.

Furthermore, if an aircraft type is to be type rated, then it must be clear which maintenance was the basis of the type rating decision. That will provide clarity of the minimum required type training course content.

3.1.1 Safety considerations

Acceptable levels of safety assurance would be maintained under this policy option 1 by:

- clearly describing the technical criteria on which an aircraft or engine would be type rated
- specifying that a type rating must be assigned if a technical review determines that a safety critical maintenance function cannot be safely performed without additional specific training.

3.1.2 Implementation considerations

EASA type rating decisions would generally remain as the effective default position for Australian type ratings; and Australian type ratings would continue to be legislated through the Part 66 MOS, with industry consultation through the current processes.

This approach would involve some additional workload for CASA in cases where an additional technical review is warranted. It is also possible that this approach will result in some variations from EASA type rating decisions. However, this is considered a more appropriate legislative decision-making approach in the Australian context than automatic acceptance of EASA decisions in all cases.

3.2 Policy option 2: Facilitate separate theory and practical training

Part 66 already provides for type rating theory and practical training to be provided separately (Part 66 MOS 66.A.50), and CASA provides guidance on the subject in AC 66-07.

The majority of type training courses are already framed around separate theory and practical training. CASA envisages that, ongoing improvements in remote learning options, which were accelerated during the COVID pandemic, could be further expanded to improve type training

outcomes. In particular, educating maintenance and training providers about this possibility and facilitating arrangements where MTOs provide remote theory training and AMOs provide local practical training.

CASA notes that this option is already available, but potentially underutilised. CASA is seeking input from industry on how to improve this pathway and educate industry on its availability.

3.2.1 Safety considerations

No new safety considerations as this option is already available.

3.2.2 Implementation considerations

It is not expected that any special implementation considerations would be necessary for this option.

3.3 Policy option 3: Expand permitted training

Permitted training is the term used to cover Part 145 of CASR and CAR 30 AMOs being authorised to train, or organise training for, their own personnel to gain type ratings.

Part 66 and Part 145 of CASR make provision for permitted training by AMOs in which theory and practical training is provided by an AMO to employees under specified conditions as set out in section 145.A.37 of the Part 145 MOS. Provision is also made for permitted training to be provided by CAR 30 approval holders under Civil Aviation Order (CAO) 104.0.

Permitted training is currently available for some types of aircraft (see part 2 of Table 2 of the Part 66 MOS). However, permitted training is not utilised as widely as envisaged as an alternative to Part 147 training. Potential issues include:

- expanding the list of eligible aircraft requires a MOS amendment in each case
- the current prescribed training standards and/or administrative requirements and associated costs may be a barrier for many AMOs to achieve (see Appendix III to the Part 145 MOS and Appendix III to the Part 66 MOS).

Potential options include:

- Amending the Part 66 MOS to expand the list of eligible aircraft types for permitted training to cover an extended range of aeroplanes, helicopters and turbine engines, for both B1 and B2 licence categories. This would remove the need for case-by-case MOS amendments and remove a barrier for industry.
- Adjusting the permitted training standards in legislation and/or implementation procedures to better reflect that permitted training is delivered by a Part 145 maintenance organisation in a working maintenance environment, rather than a Part 147 training organisation in a training organisation environment.
- Improving education and information for industry to use permitted training.

3.3.1 Safety considerations

Acceptable levels of safety assurance would be maintained under this option by ensuring that permitted training approvals meet appropriate standards, proportionate to the complexity of the aircraft, engine or avionics systems. The applicable standards and guidance material would

include some adjustments to better reflect the practical circumstances, but still maintain the same safety outcome.

3.3.2 Implementation considerations

Implementation considerations would be relatively minor. Permitted training would continue to be an application-based arrangement based on prescribed training standards. Some adjustments would be required to better reflect the practical circumstances of training in a working maintenance environment.

3.4 Policy option 4: Recognition of certain type training

Currently, a type rating can normally only be granted by CASA if the associated training has been directly approved by CASA (see MOS 66.A.45(c)).

Under this option, certain type training courses could be automatically accepted by CASA for the grant of a type rating, i.e., CASA would not need to issue Australian approvals for certain training courses that meet appropriate standards and consequently there would be no fee payable to CASA to approve those training courses.

The standards that would be used are already prescribed in the Part 66 MOS and associated guidance is provided in CASA AMC/GM and advisory circulars, but CASA is open to suggestions to improve the standards and guidance materials.

3.4.1 Safety considerations

One of the core ICAO principles is that National Aviation Authorities (NAA) need to be mindful of the potential impact of duplicating approval processes for training organisations and their programmes. ICAO standards encourage formal agreements and procedures between NAAs.

CASA's preference for acceptance of international products and services is normally that arrangements include reciprocal acceptance by the other country of the equivalent Australian products and services. However, it is acknowledged that it may not be viable to expect reciprocal arrangements in all cases, and that the greater overall benefit may be achieved by unilateral acceptance in some cases.

If it can be established that an existing approval meets the relevant standards, for example, where the standards under which a foreign approval has been granted, and is subsequently overseen by a foreign NAA, are sufficiently similar to the Australian standards, then CASA could accept that approval.

3.4.2 Implementation considerations

Potential sources of recognition

Given that Part 66 of CASR is based on EASA Part 66, aircraft or engine type training courses approved by EASA or an EASA Member State would potentially be suitable for recognition. Similarly, other like-minded countries with an EASA based maintenance licensing system would be considered (e.g., Singapore). Countries with non-EASA based licensing systems but similar safety assurance philosophies to Australia (e.g., New Zealand or the USA) could be included subject to the courses being shown to cover the safety-critical matters which set an aircraft or engine apart from a non-type rated aircraft.

Potential recognition arrangements

Foreign training courses could be recognised directly through legislation, through agreements with other countries/NAAs, or procedurally, such as through permitted training arrangements. In all cases there would need to be adequate assurance that the required standards are being maintained.

Potential effects on local training

Under the current arrangements, local Australian training organisations do not provide type training for all aircraft and engine types, and many maintenance organisations choose to source type training from foreign organisations. It is expected that this will be a permanent feature of the Australian training environment.

This policy option is intended to reduce the costs and improve availability of overseas training options, which would clearly be a benefit to industry participants already using such arrangements.

However, it is noted that increased acceptance of foreign training courses may have adverse effects on the commercial viability of equivalent courses being developed and offered by local training organisations. This may offset some of the benefits of this option.

CASA is seeking industry input on these considerations.

3.5 Policy option 5: Group similar aircraft and engine types

This option would expand the existing concept of grouping aircraft of similar types and technologies such that a licence holder's competency on one aircraft type or avionics system provides an acceptable degree of safety assurance that the licence holder could carry out maintenance of all aircraft types or avionics systems in the group to the required standard using the applicable instructions for continuing airworthiness.

The existing grouping arrangements are generally limited to aircraft types with the same manufacturer. This option would provide more flexibility to group aircraft types based on the complexity, design and technologies of the aircraft. The current focus is particularly on helicopters, but the expanded approach would be available for aeroplanes and engines. CASA is seeking industry suggestions for aircraft and engine types that could be grouped, for both B1 and B2 type ratings.

Under this option the following would apply:

- Type training (theory and practical) for one aircraft type in a group would be used to grant type ratings and/or type rating privileges for the whole group of aircraft.
- Licence holders that hold a type rating for any aircraft in a given group would automatically be granted type ratings and/or type rating privileges for the other aircraft in the relevant group.
- Type training courses may be developed that cover a group of aircraft (more easily and broadly than under the current arrangements).
- Similar engine groupings would be considered.
- Grouping of avionics systems would also be considered.

As a baseline, CASA proposes to adopt the aircraft groups and associated processes that have

been established by EASA Part 66 (see EASA 66.A.5) but noting that the current Australian category/sub-category arrangements already provide much of the substantive effect of the EASA groupings. Note that this proposal is within the existing Australian A, B1, B2 and C licence category framework - consideration of additional licence categories is outside the scope of this paper.

CASA would welcome feedback from industry on both the baseline group option and any variations or additions that would be suitable in the Australian context.

3.5.1 Safety considerations

Acceptable levels of safety assurance would be maintained under this option by the combination of:

- the relevant licence category or subcategory training continues to provide the necessary general competencies for the kind of aircraft
- type training theory will continue to provide the necessary knowledge of additional safety critical systems and technologies
- adequate practical maintenance experience on the additional safety critical systems and technologies will still be required
- maintenance is carried out in accordance with applicable instructions for continuing airworthiness
- licence holders and AMOs are responsible for assessing and ensuring that maintenance personnel are competent to carry out maintenance – a licence holder's nominal/generic licence scope is part of that assessment but will not always be sufficient in isolation to determine competency for all maintenance in all situations.

3.5.2 Implementation considerations

Granting new type ratings to licence holders would necessitate updating people's licences. Implementing this option solely by type rating changes on licences would be a considerable administrative undertaking for CASA and potentially an inconvenience for licence holders.

An alternative approach would be for CASA to amend the Part 66 MOS to provide equivalent privileges legislatively without the necessity to reissue licences. Licence holders could apply to CASA to have their licence updated at their convenience.

CASA invites feedback from industry on implementation considerations as well as the policy option.

3.6 Policy option 6: Review and rationalise existing type ratings

Prior to the introduction of Part 66, a LAME with a CAR 31 Airframes Group 19 licence could maintain and certify for maintenance of aircraft that were not classified in Group 20. When Part 66 was made, Group 19 aircraft were assigned a type rating based on the EASA Part 66 ratings.

CASA has reviewed this situation from a technical and general safety perspective, and whilst the safety assurance benefits of type ratings are acknowledged, CASA has found that there is no tangible safety basis to require type ratings for former Group 19 helicopters and possibly some lower group aeroplanes. CASA therefore proposes to revert former Group 19 helicopters and

some former lower group aeroplanes to non-type rated aircraft covered by the privileges of a B1 licence. Appendix A provides an indicative example of possible changes.

This option is generally applicable across aeroplanes, helicopters, engines for B1 and B2 licences.

In relation to engines, subject to industry input and technical assessment, CASA is not actively considering removal of ratings from turbine engines. CASA welcomes input on the use of groupings for turbine engines where appropriate.

In relation to B2 ratings, some industry input has already indicated that a number of aircraft that currently require a B2 type rating could be safely maintained under the privileges of the B2 licence without a specific type rating. CASA is seeking stakeholder input regarding B2 type ratings accordingly.

CASA considers that, subject to safety considerations, a B1 type rating for an aircraft does not necessarily imply that a B2 type rating is required. Similarly, an aircraft could be type rated for the B2 only if that is the appropriate safety and legislative approach in the circumstances.

CASA encourages industry to provide input across the entire range of this option.

Safety considerations

Group 19 rotorcraft

Acceptable levels of safety assurance would be unchanged because:

- helicopter incident data covering the period 2000 to 2020 found 45 maintenance related incidents with 27 occurring pre-Part 66 and 18 occurring post-Part 66
- no maintenance related incidents were clearly identifiable as being related to type-specific maintenance
- maintenance incidents were related to poor maintenance practices such as tools, rags or metal objects left in the aircraft, inadequately torqued fastenings, loose/missing drain plugs etc.
- technical review of the affected aircraft indicates that there are no safety critical maintenance requirements that warrant mandatory type training in addition to normal B1.3 subcategory training.

Other aircraft and engines

CASA is not specifically proposing to remove ratings for aircraft or engine types other than the old Group 19 rotorcraft; however, CASA will consider industry input on this subject and will review any proposal that has a sound supporting safety case. CASA would apply a technical and historic safety data review and would use a process as described in Option 1: Review type rating protocols.

Implementation considerations

Deletion of some type ratings and grouping of others would not necessitate updating people's licences. LAMEs who hold type ratings under Part 66 could retain the discontinued individual ratings, and licences could be updated at an appropriate future opportunity. This would require some changes to CASA licencing procedures so that a deleted type rating may continue to be listed on a licence for purposes of international recognition.

4 Safety considerations

Acceptable levels of safety assurance would be maintained under these options by:

- a clear description of the technical and safety criteria on which an aircraft would be type rated
- relevant licence category or subcategory training continues to provide the necessary general competencies for the kind of aircraft
- maintenance will continue to be carried out in accordance with applicable instructions for continuing airworthiness
- licence holders and AMOs being responsible for assessing and ensuring that maintenance personnel are competent to carry out maintenance – a licence holder's nominal/generic licence scope is part of that assessment but will not always be sufficient in isolation to determine competency for all maintenance in all situations
- removal of type ratings for Group 19 rotorcraft would not introduce a new or untested policy; accident/incident data show no changes to safety standards of the affected aircraft subsequent to commencement of Part 66 of CASR
- grouping of similar aircraft types would be based on engineering assessment of whether the differences between the aircraft represent any discrete training needs.

5 International considerations

The options in this paper are generally consistent with the policies of other like-minded countries so it is not expected that there would be any adverse effect on any international agreements or relationships.

5.1 ICAO

These options would maintain full compliance with ICAO maintenance personnel licensing standards and practices.

5.2 EASA

Australian CASR Part 66 legislation is based in the corresponding EASA Part 66, with some variations. It is acknowledged that the Australian legislation has not kept up with a range of changes made by EASA. CASA proposes to continue to maintain general alignment with EASA Part 66, but with consideration and inclusion of variations that are necessary and appropriate in the contemporary Australian environment.

This paper includes some options that align with current EASA Part 66, as well as some potential minor variations that nonetheless maintain general alignment with the underlying principles of the EASA licensing and type rating system.

The main variations from EASA are in option 5 around disrating former Group 19 aircraft and grouping of aircraft from different manufacturers (see Appendix A). These differences from EASA Part 66 are considered as minor variations that are beneficial to industry and are necessary and appropriate in the contemporary Australian environment.

5.3 USA FAA

The FAA maintenance licensing system does not use type ratings, but instead incorporates more outcome-based arrangements to ensure safety and competency of maintenance personnel. This paper therefore has no substantive effect on comparisons with the FAA policies and legislation for maintenance personnel licensing.

5.4 New Zealand CAA

The New Zealand licensing system is not aligned with CASR and EASA Part 66 licence categories but does include type ratings and group ratings that are similar to the EASA Part 66 arrangements. The options in this paper therefore generally improve alignment with the New Zealand licensing policies, particularly in relation using group ratings to lower costs and improve accessibility of licensing outcomes and maintenance services to industry.

6 Cost considerations

The proposed options would generally reduce a range of regulatory compliance costs without introducing new costs to industry.

Any potential adverse effects identified for Policy option 4: Recognition of certain type training, will be considered accordingly.

7 Timeframes

The time frame for implementation of these options would be dependent on a range of factors, including CASAs broader priorities for allocation of drafting and other implementation resources.

CASA anticipates that industry consultation on these options would continue throughout 2022 with any associated legislative changes and implementation to be developed and consulted progressively from early 2023.

7.1 Closing date for comment

CASA will consider all comments received as part of this consultation process and will incorporate changes to the regulation as appropriate. Comments on the draft new policy should be submitted through the online response form by close of business 12 February 2023.

Appendix A

Indicative tables of potential changes to type ratings

A.1 Indicative type ratings

A.1.1 Table 1 refers to helicopter airframe type ratings that would be removed for B1.3 licences to illustrate the option in relation to Group 19 aircraft, and initiate discussion. Input on other types, aeroplanes, engines and B2 ratings is encouraged. Industry input will inform the development of a more detailed and comprehensive legislative proposal, which will be consulted accordingly.

Table 1 – Type ratings proposed for removal

TC holder	Helicopter type	Old group	Proposed B1.3 rating	Notes
AGUSTA WESTLAND	A109 all	19	Nil	Engines would not be disrated. CASA is seeking industry input on B2 ratings to be assessed case by case
AIRBUS HELICOPTERS	AS355 all	19	Nil	
AIRBUS HELICOPTERS DEUTSCHLAND GmbH	BO 105 all	19	Nil	
	MBB-BK 117 A/B/C1/C2	19	Nil	
MD HELICOPTERS INC	MD900	19	Nil	
SIKORSKY AIRCRAFT	S-58 BT to JT	19	Nil	

A.1.2 Table 2 refers to some representative helicopter types to illustrate the option and initiate discussion. Input on other types, aeroplanes, engines and B2 ratings is encouraged. Industry input will inform the development of a more detailed and comprehensive legislative proposal, which will be consulted accordingly.

Table 2 – Proposed grouping of some multi-engine turbine power helicopters

TC Holder	Type designation	Proposed B1.3 type/group rating	Notes
BELL HELICOPTER CANADA	222 222B 222U 222SP 230 430	222/230/430 (Honeywell LTS101, RR Corp 250) See Note.	Engines would not be disrated. CASA is seeking industry input on B2 ratings to be assessed case by case
	427 429	427/429 (PWC PW207D)	

Note: The Bell 222/230/430 endorsement does not include powerplant privileges unless the relevant powerplant for each type is endorsed on the licence.